

OUTLET PERFORMANCE CERTIFICATE ID: SPS012 - Q130S4/C90

Test Results	ID: SPS012
Description	SPS Vari-Level Drains – 90 ⁰ Outlet
Drain Type	130mm Square Side Outlet Drain
Model	Q130S4/C90
Outlet Size	65NB
Test Date	23 rd August 2016
Grate Drawing	Square grate polished 304 or satin 316 Stainless Steel. uPVC 90° Body and Reversible Membrane Clamp Collar with female 65mm BSP thread.
Housing Drawing	SPS Catalogue Ref: 4.04 Height adjustment: Min. 20mm Max. 65mm Typical Application
	Membrane Membrane Tiling/Paving/Topping Weep slots 3 x places Tiling/Paving/Topping N.B
Drain Pipe Configuration	Due to the side entry 90 degree bend design of the housing the horizontal pipe configuration was modified to suit the housing. The 90 degree bend configuration was omitted from this test.



Association of Hydraulic Services Consultants Australia – Research Foundation

Flow Characteristic Curve - Q130S4/C90 140 120 100 Nater Head Level (mm) 80 60 TRANSITION FLOW REGION Please note that the water depth levels in this shaded area of the chart were observed to fluctuate 40 continuously between maximum and minimum levels due to the transition between weir and orifice flow conditions occurring at the outlet. Only 20 the maximum observed water levels are plotted on this chart 0 0.5 1.5 2 2.5 Flow Rate (L/s)





Weir flow - 1 L/s (50mm)

Surcharged Flow - 2.5 L/s (110mm)

Observation Comments:

- A concentric swirl pattern was observed which indicated weir flow conditions, with the water head level stabilising at each flow rate setpoint from 0-2.0 L/s.
- At 2.5 L/s a transition from swirl motion to vortex flow was observed, as the air core decreased to approximately 10mm Diameter and moved to the side of the grate. At 3.0 L/s the vortex surcharged and transitioned to orifice conditions were characterised by the water level surging between 30-90mm.
- The maximum flow limit to maintain weir flow conditions is 2.0 L/s.

I hereby certify that the test results presented on this outlet performance certificate are true and correct and were obtained using recognised AHSCA Gutter Outlet Testing procedures.

Dr Terry Lucke,

Chief Researcher:

Mark Alexander,

AHSCA Foundation Chairman:

Date: 16th November 2016

Date: 16th November 2016